

Work Order ID 150547

Thursday, August 25, 2016 3:00:04 PM

150547

Page 1

Item ID: D5311-5

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Prop Rod

Start Date: 8/26/2016 Start Qty: 15.00

15

Cust Item ID:

Required Date: 8/26/2016 Req'd Qty: 15.00

15

Customer:

Reference:

Approvals:

Process Plan: demDate: 16/08/25

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D5311

B

110

0.00

110

Small Fab

Small Fab

Memo

0.00

1- CUT AT 11.00"

2- PUNCH ONE END AS SPEC CONTROL DWG (SEE NOTES)

3- TRIM OFF ACCESS MATERIAL AND DEBURR.

15 FF

120

QC5- Inspect part completeness to step on W/O

0.00

120

QC

Quality Control

Memo

0.00

15DAS
38
9-89
SEP 07 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Thursday, August 25, 2016 3:00:04 PM

Page 2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: _____	0.00							
130	Memo	0.00				15	DAS 6 9-89		SEP 08 2016
Packaging	***WA1***								
Packaging									
140	QC21- Final Inspection - Work Order Release	0.00					DAS 21 9-89		SEP 08 2016
140	Memo	0.00							
QC									
Quality Control							DAS 21 9-89		SEP 08 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

Thursday, August 25, 2016 3:00:04 PM

Page 1

Work Order ID: 150547

150547

Parent Item: D5311-5

D5311-5

Parent Item Name: Prop Rod

Start Date: 8/26/2016

Required Date: 8/26/2016

Start Qty: 15.00

Required Qty: 15.00

Comments: IIN REV:A 16.02.10 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304TR0.750W.049		Purchased			No		f	280.4694		14.52632			

M304TR0 750W 049

304 RD Tube .750 x .049W

FF SEP 01 2016

Location

Loc Qty

Loc Code

GA002

280.469358

M134306

2.75

M134528

36.473684

M134604

43.420524

M134824

7.618947

M135093

33.68421

M135242

60

M135325

12.920313

M135373

83.60168



NOT Pulled

4.8421065

9.684213

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

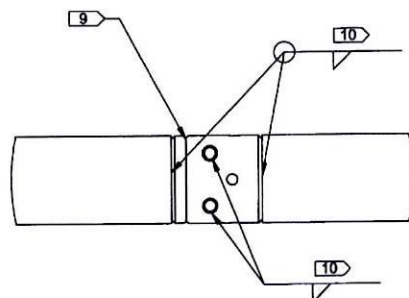
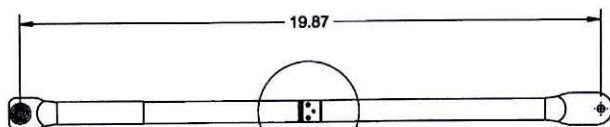
QA Closed: _____ Date: _____

Work Order update only ☐

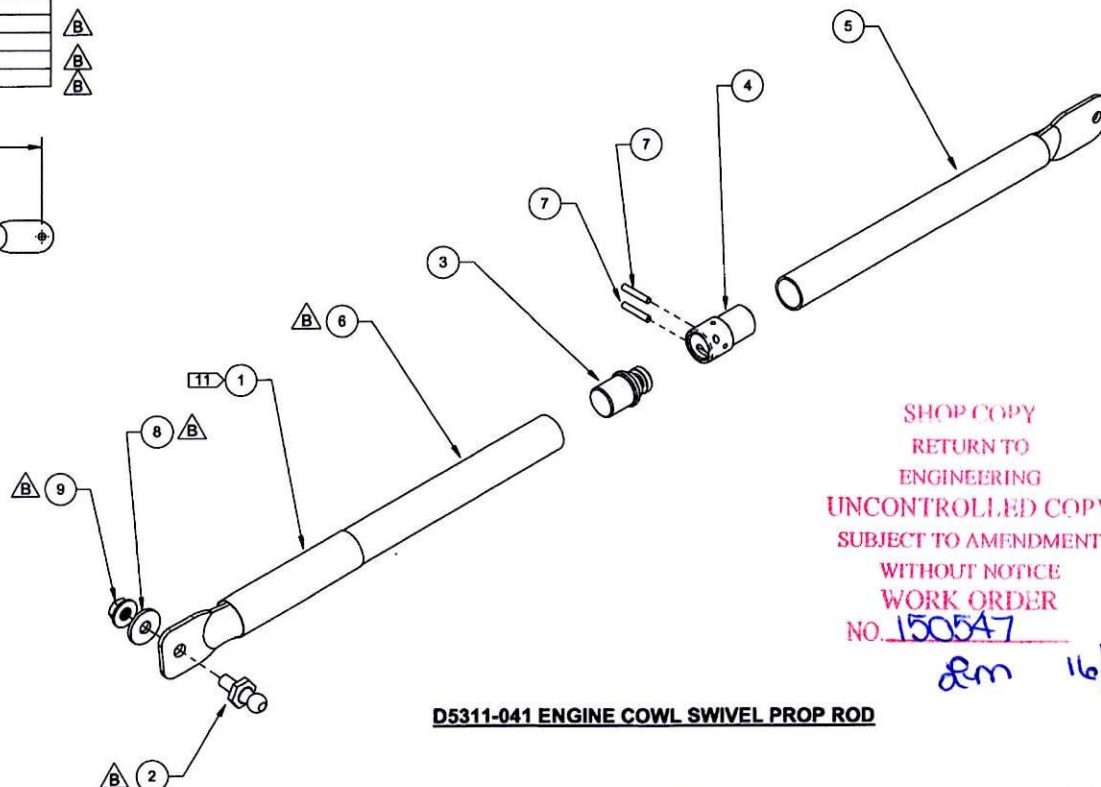
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By 		
							Lead hand / Supervisor Approval Verification 		
							QC / QA Coordinator Approval 		

Root Cause				FAULT CATEGORY																																																											
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	No Re-verification ☐	Operator ☐	Offset/Setup ☐	Supplier ☐	Training ☐	Use for Testing ☐	Poor Information ☐	Rushing ☐	Product Improvement ☐	Process Improvement ☐	Manufacturing Process ☐	Past Due ☐	Pressure/Forced ☐	Bending ☐	Centre Not Concentric ☐	Cracks ☐	Crimp/Kink/Ripple/Wave ☐	Cuffs ☐	Crushing ☐	Heat Treat ☐	Wave/Twist in Tube ☐	Marks/Chatter ☐	Temperature/Cure ☐	Set-up ☐	BOM/Route ☐	Broken/Damage/Defect ☐	Inspection Incomplete/Unqualified ☐	Contamination ☐	Countersink ☐	Cut Too Short ☐	Instructions Incomplete/Unclear ☐	Drill Holes ☐	Power Loss/Surge ☐	Folio/Program ☐	Grain ☐	Weld ☐	Wrong Stock Pulled ☐	Out of Sequence ☐	Off-set ☐	Mislabeled ☐	Fit/Function ☐	Misaligned/off center ☐	Positioned Wrong ☐	Outside Dimensions ☐	Over/Under tolerance ☐	Part Incorrect ☐	Part Lost/Missing ☐	Part Moved ☐	Drawing ☐	Finish ☐	Misread ☐	Turning Sequence ☐
																								OTHER : _____																																							

ITEM	QTY	P/N	DESCRIPTION
	X	D5311-041	ENGINE COWL SWIVEL PROP ROD ASSEMBLY
1	1	D3158-030	HEAT SHRINK TUBING
2	1	D3622-15	BALL STUD
3	1	D5311-1	SWIVEL JOINT
4	1	D5311-3	SWIVEL JOINT
5	1	D5311-5	PROP ROD
6	1	D5311-7	PROP ROD
7	2	D5317-1	DOWEL PIN
8	1	LN9016-06K	WASHER (ALT: LN9016-06L, 23111AG050LE)
9	1	LN9161-06M	NUT (ALT: ASN52320BH050N)



DETAIL A



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 150547

dm 16/08/25

D5311-041 ENGINE COWL SWIVEL PROP ROD

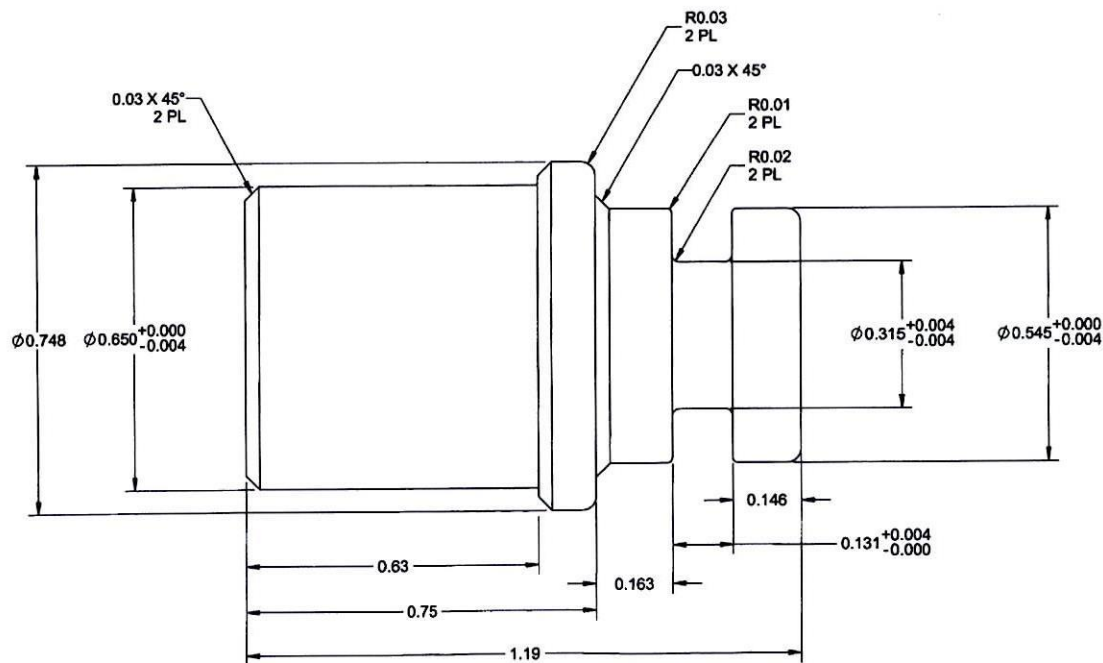
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.91 lbs
- 8) WELD PER QSI 004
- 9) ENSURE ROD SWIVELS EASILY AFTER WELDING
- 10) REMOVE WELDING MARKS USING ELECTROPOLISHER
- 11) INSTALL APPROXIMATELY AS SHOWN

RELEASED
2016-04-18
EN 16-57

APPROVED

B	REVISED D5311-3 DIMENSIONS. ADDED D3622-15 BALL STUD, LN9161-06M NUT AND LN9016-06K WASHER. ADDED D5311-7 PROP ROD (SHEET 5).	AK	16.02.17
A	NEW ISSUE	AK	15.09.28
REV.	DESCRIPTION	BY	DATE
DESIGN	AK	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AK		
CHECKED	CC	DRAWING NO.	REV. B
MFG. APPR.	DD	D5311	SHEET 1 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	ENGINE COWL SWIVEL PROP ROD	NTS
DATE	16.02.17	COPYRIGHT © 2016 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



D5311-1 SWIVEL JOINT, INNER

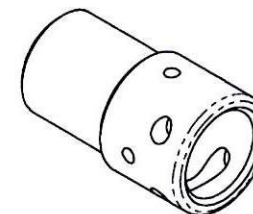
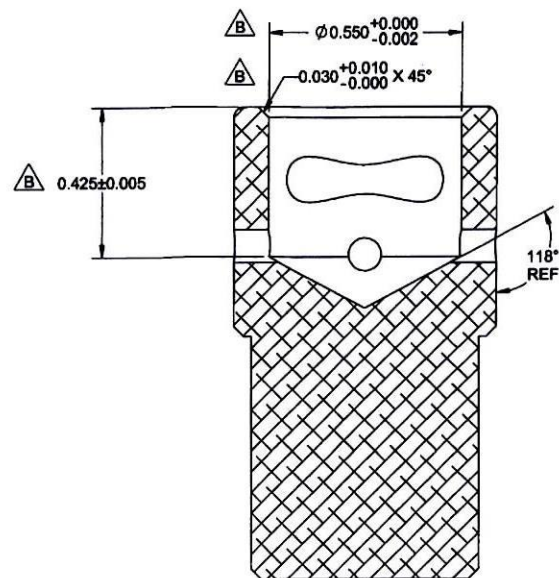
NOTES:

- 1) MATERIAL: AISI 304/316 SS ROUND BAR
PER ASTM A276
REF DART SPEC M304R
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.10 lbs

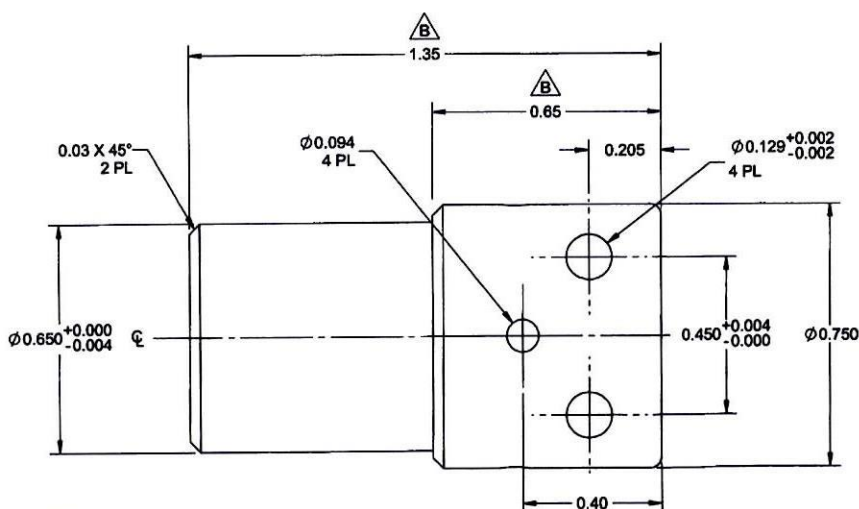
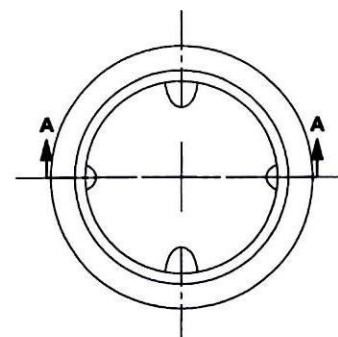
RELEASED
2016-04-18

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DESIGN	AK	DART AEROSPACE LTD	
DRAWN	AK	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CC	DRAWING NO.	REV. B
MFG. APPR.	DD	D5311	SHEET 2 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	ENGINE COWL SWIVEL PROP ROD NTS	
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SECTION A-A



NOTES:

- 1) MATERIAL: AISI 304/316 SS ROUND BAR
PER ASTM A276
REF DART SPEC M304R
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.11 lbs

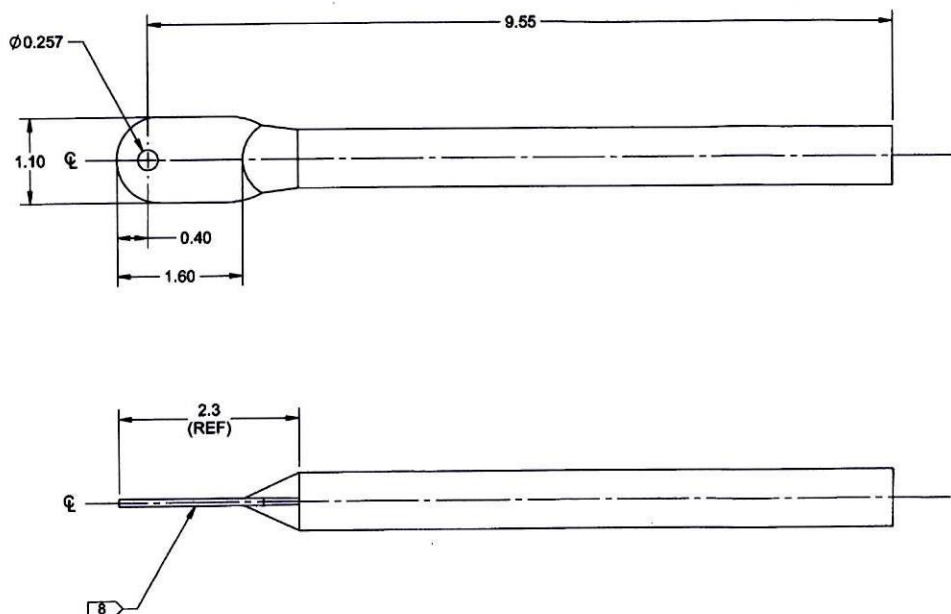
D5311-3 SWIVEL JOINT, OUTER

RELEASED
2016-04-18

APPROVED

DESIGN	AK
DRAWN	AK
CHECKED	CC
MFG. APPR.	DD
APPROVED	HS
DE APPR.	DS
DATE	16.02.17

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D5311	REV. B SHEET 3 OF 5
TITLE ENGINE COWL SWIVEL PROP ROD NTS	SCALE
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D5311-5 PROP ROD

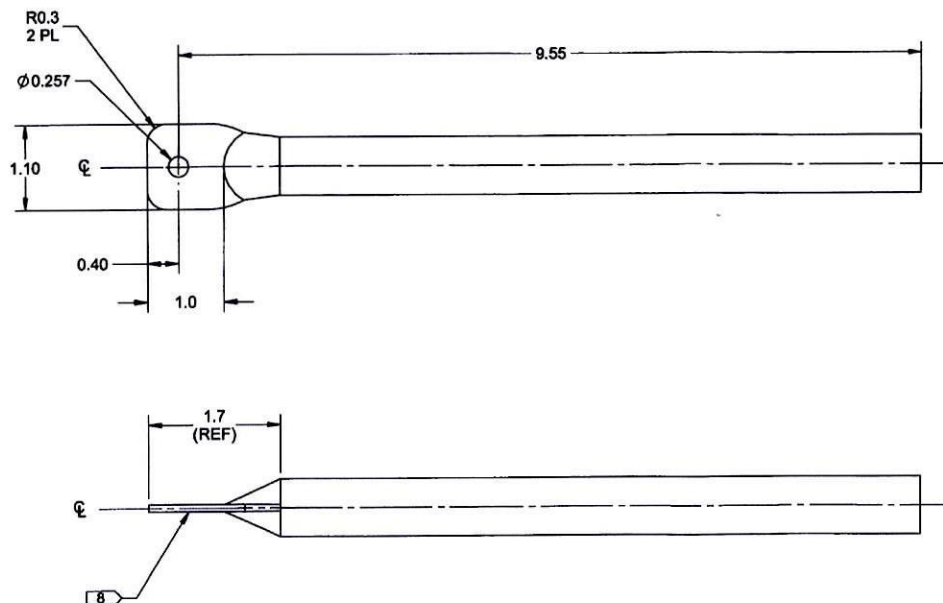
NOTES:

- 1) MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING
PER ASTM A276 OR ASME SA213 OR ASTM A269
REF DART SPEC M304TR0.750W.049
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.35 lbs
- 8) PUNCH END USING TOOL NUMBER DT8117

RELEASED
2016-04-18

APPROVED

DESIGN	AK	DART AEROSPACE LTD	
DRAWN	AK	HAWKESSBURY, ONTARIO, CANADA	
CHECKED	CC	DRAWING NO.	REV. B
MFG. APPR.	DD	D5311	SHEET 4 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	ENGINE COWL SWIVEL PROP ROD NTS	
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D5311-7 PROP ROD

NOTES:

- 1) MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING
PER ASTM A276 OR ASME SA213 OR ASTM A269
REF DART SPEC M304TR0.750W.049
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.35 lbs
- 8) PUNCH END USING TOOL NUMBER DT8117. TRIM, DRILL NEW HOLE AND FORM CORNERS AS REQUIRED

RELEASED
2016-04-18

APPROVED

DESIGN	AK	DART AEROSPACE LTD	
DRAWN	AK	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CC	DRAWING NO.	REV. B
MFG. APPR.	DD	D5311	SHEET 5 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	ENGINE COWL SWIVEL PROP ROD NTS	
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DART AEROSPACE LTD		Work Order:	150547
Description: Prop Rod		Part Number:	D5311-5
Inspection Dwg: D5311 Rev: B		Page 1 of 1	

INSPECTION SHEET

[illegible]

Engineering Approval: (If necessary)		Date:
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